

REMARKS

In the Office Action, the Examiner rejected claims 1, 7, and 13 under 35 U.S.C. § 102(e) as being anticipated by Falbo et al. (U.S. Publication No. 2003/0163791, hereinafter “Falbo”); rejected claims 2, 3, 8-10, 14, and 15 under 35 U.S.C. § 103(a) as being obvious over Falbo in view of Ahrens (U.S. Patent No. 6,664,010 B2); rejected claims 4, 10, and 16 under 35 U.S.C. § 103(a) as being obvious over Falbo in view of Ahrens and Yoshida (U.S. Patent No. 6,268,234 B1); and allowed claims 5, 6, 11, 12, 17, and 18. Applicants thank the Examiner for the indication of allowable material, but respectfully traverse the rejections.

Applicants have amended claims 1, 2, 5, 7, 8, 11, 13, 14, and 17 to even more appropriately define the present invention. Claims 1-18 remain pending.

Applicants respectfully traverse the rejection of claim 1 as being anticipated by Falbo. In order to support a rejection under 35 U.S.C. § 102, each and every element of each claim in issue must be found, either expressly described or under principles of inherency, in that single reference. Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

Falbo does not teach each and every element of claim 1. Claim 1 recites a method of designing patterns including “obtaining an amount of disparity between the circuit pattern and the mask pattern, . . . and applying correction patterns . . . considering a shape of the step pattern and the disparity.”

The Examiner contends that Falbo discloses a “shape-based correction engine” to apply a desired corrective action to the combined pattern 350. Office Action at page 3. Regardless of the Examiner’s contentions, Falbo fails to teach or suggest at least “obtaining an amount of

disparity between the circuit pattern and the mask pattern,” and therefore cannot teach “applying correction patterns . . . considering a shape of the step pattern and the disparity,” (emphasis added) as recited in claim 1.

Thus, claim 1 is not anticipated by Falbo. Independent claims 7 and 13, although of different scope, recite limitations corresponding to those of claim 1 discussed above, and thus are also not anticipated by Falbo for at least the above discussed reason. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1, 7, and 13 under 35 U.S.C. § 102(e).

Applicants respectfully traverse the rejection of claims 2, 3, 8-10, 14, and 15 under 35 U.S.C. § 103(a) as being unpatentable over Falbo in view of Ahrens. To establish a *prima facie* case of obviousness, three basic criteria must be satisfied. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine references. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all of the claim elements. *See* M.P.E.P. § 2143. Moreover, the requisite teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants’ disclosure. *See In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). *See* M.P.E.P. § 706.02(j).

Claims 2 and 3, 8-10, and 14 and 15 respectively depend from independent claims 1, 7 and 13, and thus incorporate each and every element recited in their corresponding independent claim. Claim 1 is allowable over Falbo for at least the above discussed reasons, specifically that the cited prior art fails to teach or suggest at least “obtaining an amount of disparity between the circuit pattern and the mask pattern,” as recited in claim 1. Applicants respectfully submit that

Ahrens also fails to teach or suggest “obtaining an amount of disparity between the circuit pattern and the mask pattern, . . . and applying correction patterns . . . considering a shape of the step pattern and the disparity.”

Ahrens teaches a method for “generating corrected patterns for a phase-shifting mask and its associated trimming mask.” Col. 1, lines 10-13. As shown, for example, in Fig. 2, the method taught by Ahrens includes design and initial layout of a mask. Following the initial layout and fabrication of a “phase-shifting mask and a trimming mask,” the patterns of the aforementioned masks are corrected using “correction rules,” which address line shortening, rounding of corners and narrowing. Col. 3, lines 5-20, and col. 5, line 49- col. 6, lines 8. “The deviations are corrected with the aid of predetermined correction rules,” and are “compensated for,” in the production of the phase-shifting mask or trimming mask, respectively, using “covering areas,” as shown, for example, in Figs. 4 and 6, and as described in column 4, lines 24-45, col. 6, lines 15-18, lines 30-32, and column 8, lines 22-40.

Further, Ahrens teaches a method to correct patterns based on anticipated deviations based on predetermined correction rules. These broad and general teaching of Ahrens, however, fail to teach or suggest the claimed “obtaining an amount of disparity between the circuit pattern and the mask pattern.” Accordingly, Ahrens necessarily fails to teach “obtaining an amount of disparity between the circuit pattern and the mask pattern, . . . and applying correction patterns to the mask pattern in accordance with correction rules considering a shape of the step pattern and the disparity” (emphasis added) as required by claim 1, and therefore fails to cure the deficiencies of Falbo.

Accordingly, Ahrens does not overcome the deficiencies of Falbo pointed out above with respect to the rejection of independent claims 1, 7, and 13. Therefore, claims 2 and 3, 8-10, and

14 and 15 are also allowable over Falbo and Ahrens at least due to their respective dependence from claims 1, 7, or 13. Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 2, 3, 8-10, 14 and 15.

Applicants respectfully traverse the rejection of claims 4, 10, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Falbo in view of Ahrens and Yoshida. Claims 4, 10, and 16 respectively depend from claims 1, 7, and 13. As explained above, Falbo and Ahrens fail to teach or suggest at least “obtaining an amount of disparity between the circuit pattern” as required by claim 1 and corresponding limitations of claims 7 and 13. Yoshida is drawn to a solid-state imaging device, but does not teach or suggest “obtaining an amount of disparity between the circuit pattern and the mask pattern,” as required by claim 1 and corresponding limitations of claims 7 and 13, and thus fails to cure the deficiencies of Falbo and Ahrens.

Therefore, claims 4, 10, and 16 are allowable over Falbo, Ahrens, and Yoshida at least due to their respective dependence from independent claims 1, 7, and 13. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 4, 10, and 16.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.


Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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